

GW25-e3273

Persistent lipid abnormalities in statin-treated patients with coronary artery disease in China: part of the Dyslipidemia International Study

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Objectives: To evaluate the prevalence of persistent lipid abnormalities and statin use in Chinese patients with coronary artery disease.**Methods:** This cross-sectional observational study consecutively enrolled 9420 outpatients with coronary artery disease in China. ESC/EAS Guidelines for the management of dyslipidemia and Chinese guidelines on prevention and treatment of dyslipidemia in adults were used to compare the control rate of low density lipoprotein cholesterol, high density lipoprotein cholesterol and triglyceride.**Results:** Among the 9420 participants, 33.6% was diagnosed as diabetes mellitus. The percentage of patients with not-at-goal LDL cholesterol was significantly lower in patients with diabetes than those without diabetes (72.7% vs 73.2%, $P < 0.001$). The corresponding values for HDL-C and TG were 42.9% vs 34.2% ($P < 0.001$) and 40.6% vs 35.2% ($P < 0.001$), respectively. Only about 10% patients had optimal LDL-C, HDL-C and TG. Compared with patients without DM, patients with DM were more likely to have mixed dyslipidemia. Atorvastatin (47.0%) and simvastatin (34.4%) were the two most frequently used statin and the average statin dosage was 29.09 mg/d (simvastatin equivalent). Drug combination with statin to modulate lipid was only 3%.**Conclusions:** Although international guideline highly recommends intensive lipid modification in patients with coronary artery disease, persistent dyslipidemia was still prevailing in China, even with statin treatment.

GW25-e0273

To dynamically observe a severe familial hypercholesterolemia child with seven-year follow up in China: a call for actionJiang Long¹, Gao Feng¹, Sun Liyuan¹, Pan Xiaodong², Zhang Haibo², Yong Qiang³, Wang Qian¹, Yang Ya¹, Wang Shiwei¹, Wang Lvya¹¹Beijing An Zhen Hospital, The Key Laboratory of Remodeling-related Cardiovascular Diseases, Beijing Institute of Heart, Lung and Blood Vessel Diseases, ²Department of Cardiac Surgery, Beijing An Zhen Hospital, Capital Medical University, 2 Anzhen Road, Chaoyang District, Beijing 100029, Chin, ³Department of Imaging, Beijing An Zhen Hospital, Capital Medical University, 2 Anzhen Road, Chaoyang District, Beijing 100029, China**Objectives:** Familial hypercholesterolemia (FH) is a severe autosomal codominant disorder that is characterized by an elevated concentration of low-density lipoprotein cholesterol (LDL-C) and a high prevalence of premature coronary heart disease. We report clinical cardiovascular data from one case of homozygous FH in China after a seven-year study.**Methods:** We obtained 50 FH patients with homozygous phenotypes who were admitted to Anzhen Hospital between 2005 and 2007 and selected one patient who was diagnosed with severe hyperlipidemia with early symptoms of cardiovascular disease. After diagnosis of FH, we performed exon capture screening methods by using a gene capture chip to genetic analysis and given cholesterol-lowering drugs to treat the patient. Follow-up clinical data were collected over seven years.**Results:** Genetic analysis confirmed the diagnosis of compound heterozygous FH. The patient had mutations in exon 2 Q12X, exon 6 N296T, and exon 6 892delA which may cause severe loss of LDLR function, including endocytosis and degradation in the LDL-R gene. Although the patient's TC and LDL-C concentrations were reduced by 28% and 6%, respectively, with a combination of cholesterol-lowering drugs (10mg atorvastatin, 5mg ezetimibe plus 0.5mg probucol per day), both levels remained higher than their target values. Clinical imaging data collected over seven years showed that the left chamber of the patient's heart was persistently dilated and with mitral insufficiency (from mild to severe between 2007 and 2013), myocardial ischemia due to multiple coronary artery stenoses, and multivessel plaque formation.**Conclusions:** Based on prevalences between 1/500 and 1/200, between 14 and 34 million individuals worldwide have FH. In China, there are approximately 2.6 million potential FH patients. However, FH patients are underdiagnosed and undertreated in China because both doctors and patients lack knowledge of FH. From our case report, we can found the atherosclerosis has progress quickly in this HoFH child even if the cholesterol-lowering drugs were given. We can imagine that the Chinese FH population will have poor outcomes if we continue overlook this population, and this will also potentially increasing costs for the country. Therefore, we hope our report will encourage the government to devote more attention to this disease.

GW25-e2435

The relationship between breastfeeding and cardiovascular fitness in 7 to 8 years old childrenMohammadreza Vafa¹, Javad Heshmati¹, Farzad Shidfar¹, Hamidreza Baradaran², Behzad Heidarpour³¹Nutrition Department, School of Public Health, Iran University of Medical Sciences, Iran, ²Epidemiology Department, School of Public Health, Iran university of Medical Sciences, Iran, ³Internal Medicine Department, School of Medicine Kermanshah University of Medical Sciences, Iran**Objectives:** Based on burden of disease study in Iran, cardiovascular disease is the most important cause of death and disability and proper nutrition in early life is one of important determinant of prolonged health. This study was conducted to investigate the relationship of infant feeding variables with cardiovascular fitness in 7 to 8 years old children.**Methods:** In a historical cohort study, 246 children age 7 to 8 years in both sexes were selected. Children have no history of cardiovascular, renal or liver diseases. According to the health file, nutrition of children in childhood determined and categorized into three groups; children who breastfed more than 6 month, children who breastfed less than 6 month and children which was formula fed and did not breastfeeding. Cardiovascular fitness determined with a treadmill ergometry. Regression analysis in single and a 2-level linear regression models was used for examining the independent relationships of infant-feeding variables, and cardiovascular fitness.**Results:** Breastfeeding more than 6 month have a significant relation with cardiovascular fitness ($p < 0.001$). This relation was significant also with control of confounders (birth weight, children BMI, mother BMI, Physical activity, diet and fat mass).**Conclusions:** Results of this study show that breastfeeding increase cardiovascular fitness in children. Cardiovascular fitness and food pattern in childhood is modifiable and attention to breastfeeding is important in children.

GW25-e3216

Prevalence of Metabolic Syndrome among Iranian People Referring to Heart CentreMohammad Hassan Eftekhari¹, Zahra Sohrabi¹, Nader Parsa²¹School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran, ²Heart Research Centre, Shiraz University of Medical Sciences, Shiraz, Iran**Objectives:** Metabolic syndrome as a group of cardiovascular risk factors including central obesity, dyslipidemia, hypertension and insulin resistance and an important threat to human health is correlated with obesity. This study was done to determine the prevalence of metabolic syndrome in "healthy heart house" of Shiraz University of Medical Sciences.**Methods:** 350 patients from those referring to "healthy heart house" of Shiraz University of Medical Sciences were recruited. Those who were 20-65 years old were included and those with secondary obesity as the result of drugs, genetic or endocrine disorders were excluded. Weight and height were measured for calculating body mass index. Waist circumference was also recorded. Blood pressure was measured and for laboratory measurements, blood samples for participants were taken after an overnight fasting. Plasma glucose, serum HDL-c and triglyceride were analyzed. Presence of metabolic syndrome was determined using ATPIII criteria. SPSS 15 was used for analyzing the data. Results were reported as mean \pm SD and percentage for prevalence.**Results:** According to the criteria, 37% of the participants had metabolic syndrome. Most of the afflicted participants were obese and overweight. Waist circumference was high in 57 percent of the participants. High serum triglyceride, low HDL-C and hypertension were seen in 54.4%, 0.3% and 37.5% of the participants, respectively.**Conclusions:** A high prevalence of metabolic syndrome seen in the study population may be correlated with abdominal obesity. Yet, abdominal obesity can affect components of metabolic syndrome such as hypertension and fasting glucose.

Metabolic Syndromes

GW25-e0873

Lipid-lowering therapy and lipid goal attainment in patients with metabolic syndrome in China: subgroup analysis of the Dyslipidemia International Study-China (DYSIS-China)Wang Fan¹, Hu Dayi², Zhao Shuiping³, Wang Yongjun⁴, Mu Yiming⁵, Yu Bilian³, Yan Xiaowei⁶, Li Zhanquan⁷, Wei Yidong⁸, Baishali M. Ambegaonkar⁹, Min Yin¹, Ping Ye¹¹Department of Geriatric Cardiology, Chinese PLA General Hospital No. 28, Fuxing Rd, Haidian District, Beijing 100853, China, ²Department of Cardiology, Peking University People's Hospital No. 11, Xi Zhi Men Nan Da Jie, Xicheng District, Beijing 100044, China, ³Department of Cardiology, Second Xiangya Hospital, Central South University No. 139, People Street (M.), Changsha 410011, China, ⁴Department of Neurology, Beijing Tiantan Hospital, Capital Medical University No. 6, Tiantan Xi Li, Dongcheng District, Beijing 100050, China, ⁵Department of Endocrinology, Chinese PLA General Hospital No. 28, Fuxing Rd, Haidian District, Beijing 100853, China, ⁶Department of Cardiology, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College No. 1, Shuai Fu Y, ⁷Department of Cardiology, The People's Hospital of Liaoning Province No. 33, Wen Yi Rd., Shenhe District, Shenyang 110016, China, ⁸Department of Cardiology, Tenth People's Hospital of Tongji University No. 301, Yanchang Rd. (M), Shanghai 200072, China, ⁹Merck & Co., Inc.; Whitehouse Station, NJ, USA

Objectives: Metabolic syndrome (MetS) heightens the risk of cardiovascular disease, and dyslipidemia in MetS contributes to this risk. The primary goal according to NCEP-ATPIII is to normalize low-density lipoprotein cholesterol (LDL-C) levels, after which non-high-density lipoprotein cholesterol (non-HDL-C) goal attainment should be attempted in MetS. However, little is known regarding lipid-lowering therapy outcomes, including lipid goal attainment in MetS patients in China. The aim of this study was to objectively evaluate lipid-lowering therapy and LDL-C and non-HDL-C goal attainment in MetS patients in China.

Methods: Data regarding patient demographics, information on lipid-lowering agents used, lipid parameters and cardiovascular risk profiles were analyzed for 25,317 patients including in the DYSIS-China, a cross-sectional, observational study of patients treated with lipid-lowering agents at 122 centers across China. All patients were >45 years of age and had been treated with a lipid-lowering agent for at least 3 months. MetS was defined according to the NCEP-ATPIII criteria and the criteria of the 2007 Chinese Guidelines on Prevention and Treatment of Dyslipidemia in Adults.

Results: The prevalence of MetS in our study patients was 39.9% and 37.4% according to the criteria of NCEP-ATPIII and 2007 China Guideline, respectively. LDL-C goal attainment was less frequent among MetS patients compared with patients without MetS (46.9% vs 68.6% according to NCEP-ATPIII criteria; 52.2% vs 67.1% according to the 2007 Chinese guideline criteria, respectively; $P<0.001$). Similar results were obtained regarding non-HDL-C goal attainment in patients with MetS and those without MetS (51.0% vs 72.0% according to 2007 Chinese Guideline criteria; $P<0.001$). As the risk class increased, the frequency of LDL-C and non-HDL-C goal attainment decreased. The most prescribed agent was statin monotherapy in patients with MetS and those without MetS (84.6% vs 88.7% according to NCEP-ATPIII criteria; 84.6% vs 88.5% according to the 2007 China guideline criteria, respectively; $P>0.05$). In multivariate logistic regression analysis, male sex, hypertension, diabetes mellitus, coronary heart disease, systolic blood pressure, and fasting plasma glucose were correlated inappropriately with LDL-C and non-HDL-C level. The type of lipid-lowering agent was not significantly correlated with LDL-C goal attainment but was with non-HDL-C goal attainment.

Conclusions: Goal attainment for both LDL-C and non-HDL-C occurs less frequently in MetS patients than in those without MetS. Combination therapy and the residual risk due to elevated non-HDL-C levels should be considered in MetS patients. Strategies for controlling multiple risk factors in order to decrease the residual risk related to dyslipidemia in MetS patients should be recommended in the future guidelines.

GW25-e0522

Relationship between job stress and metabolic syndrome in occupational population

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Objectives: To estimate job stress status and to evaluate its relation with Metabolic syndrome (MetS) in occupational population in Shanghai.

Methods: The present stress scale (NIOSH) including five components was employed to calculate the job stress score according to stress scale reported by Karasek et al. Metabolic syndrome was diagnosed according to the definition of International Diabetes Federation (IDF). Student t-test was used to indicate the difference between two groups. The multiple logistic regression analysis was conducted to explore its relation with MetS.

Results: From June 2011 to February 2012, 2687 participants who were inhabitants from Lujiazui community were recruited and underwent the questionnaire survey and medical examination in Shanghai. The mean age was 44.49 ± 10.75 years and age of MetS group was older than control group ($P<0.05$) significantly. The prevalence of MetS was 15.60% in occupational population in Shanghai. The job stress score indicated there were significant differences between MetS group and non-MetS group on job support ($P=0.004$), job demand ($P=0.043$), job skill ($P=0.001$), and job strength ($P=0.002$). While there was no difference between two groups only on social support ($P=0.186$). As for the working time, the average working time was 41.70 hours every week in occupational population in Shanghai and it was more than mean value of 38.40 hours in general job population in China. The stress score of MetS group was higher than normal group ($t=5.26$, $P=0.001$), and their mean value (SD) were 106.11 (18.58) and 102.84 (18.70), respectively. There was no significant difference between elderly group and younger group ($t=1.53$, $P=0.125$). When adjusted independent variables were age, drinking, smoking and exercise status, the multiple logistic regression results showed weaker job control, higher job demand and worse job skill were risk factors of MetS. Their OR value (95% CI) were 1.46 (1.07, 2.01), 1.29 (1.01, 1.67) and 1.50 (1.15, 2.02), respectively.

Conclusions: The average working hours (per week) of occupational population in Shanghai was more than that in general population. The components of job stress have stronger relationship with MetS, especially in job control, job demand and job skill.

GW25-e2295

Best single predictor of metabolic syndrome via comparing the predicting ability of various anthropometric and atherogenic parameters among Uighur population in Xinjiang

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Objectives: This study aimed to identify the best single predictor of metabolic syndrome (MetS) by comparing the predicting ability of various anthropometric and atherogenic parameters among Uighur population in Xinjiang, northwest of China.

Methods: 4767 Uighur participants were selected from the Cardiovascular Risk Survey (CRS) which was carried out from October 2007 to March 2010. Anthropometric data, blood pressure, serum concentration of serum total cholesterol, triglyceride, low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C) and fasting glucose were documented. Prevalence of MetS and its individual components were confirmed according to IDF criteria. Area under the receiver's operating characteristic curve (AUC) of each variable for the presence of MetS was compared. The sensitivity (Sen), specificity (Spe), distance in the receiver's operating characteristic curve (ROC) and cutoffs of each variable for the presence of MetS were calculated.

Results: 23.7% of men had the MetS while 40.1% of women had the MetS in Uighur population in Xinjiang, the prevalence of MetS was significantly different between men and women ($P<0.001$). In men, the WHtR had the highest AUC value (AUC=0.838), it was followed by TG/HDL-C (AUC=0.826), BMI (AUC=0.812), WHR (AUC=0.781) and BAI (AUC=0.709). In women, the TG/HDL-C had the highest AUC value (AUC=0.815), it was followed by WHtR (AUC=0.780), WHR (AUC=0.730), BMI (AUC=0.719) and BAI (AUC=0.699). Similarly, among all 5 anthropometric and atherogenic parameters, the WHtR had the shortest ROC distance of 0.32 (Sen=85.40%, Spe=71.6%), the optimal cutoff for WHtR was 0.55 in men. In women, TG/HDL-C had the shortest ROC distance of 0.35 (Sen=75.29%, Spe=75.18%), the optimal cutoff of TG/HDL-C was 1.22.

Conclusions: WHtR was the best predictor of metabolic syndrome in Uighur men while TG/HDL-C was the best predictor of metabolic syndrome in Uighur women in Xinjiang.

GW25-e4322

Epicardial adipose tissue thickness in patients with metabolic syndrome: A Systematic Review and Meta-analysis

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Objectives: Many clinical imaging studies demonstrated a strong correlation between epicardial adipose tissue (EAT) and metabolic syndrome (MS) over the past decade. However, inconsistent results regarding this were reported in other studies. In our study we performed a meta-analysis to examine whether the patients with MS have an increased EAT thickness measured by echocardiography when compared with control subjects without MS.

Methods: A literature search was performed through PubMed, Ovidsp, and Web of Knowledge (January 1, 2000 to September 30, 2013). Pooled-weighted mean differences (WMD) and 95% confidence intervals (95% CI) were calculated by using random-effects models. Heterogeneity was assessed by using I² statistics and the Cochran's test between studies.

Results: At last, a total of 13 studies about EAT thickness measured by echocardiography were identified, which included 956 had MS and 1108 were controls without MS. EAT thickness was more increased in patients with MS than controls without MS, the summary WMD of EAT thickness was 1.37mm (95% CI 1.09-1.64, $P<0.0001$). Moderate heterogeneity was detected among the identified groups (Cochran's Q=42.1 and I²=69.1%). Meta-regression analysis found that waist circumference ($P=0.037$) was a factor for heterogeneity. Egger's test found no evidence of bias ($P=0.087$), as did the Begg's test statistic ($P=0.91$). Subgroup meta-analysis indicated that the summary WMD of EAT thickness was 1.36mm (95% CI 1.08-1.63, $P<0.001$) at end-diastole through echocardiography, but the summary WMD of EAT thickness was 1.85mm (95% CI -0.26-3.96, $P=0.085$) at end-systole.

Conclusions: EAT recognized visceral fat is influenced easily by MS. EAT thickness measured by echocardiography become increased in patients with MS. However, the differences exist between end systole and end-diastole.

GW25-e4416

Apolipoprotein E gene polymorphism and risk for coronary heart disease in the Chinese population: A meta-analysis of 61 studies including 6634 cases and 6393 controls

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